Listing of Claims

What is claimed is:

1. (Four Times Amended) A plasma treatment equipment having a chamber for performing plasma treatment, the plasma treatment equipment comprising:

a plasma excitation electrode to which a power for plasma excitation is supplied, the plasma excitation electrode being provided in the chamber; and

a susceptor electrode that is opposed to the plasma excitation electrode provided in the chamber, the susceptor electrode having the same DC potential as that of a chamber wall of the chamber, the susceptor electrode being an electrode into which a high frequency electric current based on the power for plasma excitation flows after passing through a plasma space;

wherein the chamber wall of the chamber and the susceptor electrode are AC shorted to each other by a plurality of metal plates, the susceptor electrode is connected to the chamber wall of the chamber by a bellows disposed outside the chamber, the plurality of metal plates are configured to pass high frequency current so that the plasma treatment equipment have a suscepter impedance less than 15Ω using a power source having frequency higher than 13.56MHz [Plasma treatment equipment in which a chamber wall and a susceptor electrode having the same DC potential are AC shorted to each other].

2. (Original) The plasma treatment equipment according to claim 1, wherein said chamber wall and said susceptor electrode are shorted to each other at a location that is within a distance shorter than 500 mm from a side wall of the chamber wall.

3. (Original) The plasma treatment equipment according to claim 1, wherein said susceptor electrode is shorted to said chamber wall at a short point on a bottom wall of the chamber wall, said short point being located within a distance shorter than 500 mm from a side wall of the chamber wall as measured along the bottom wall.

4. (Amended) The plasma treatment equipment according to claim 3, wherein [said susceptor electrode is shorted to said chamber wall by a metal plate, said] each metal plate [being] is connected between the short point on the bottom wall and a second short point on a shield of the susceptor electrode.

5. (Amended) The plasma treatment equipment according to claim [3]4, wherein the said metal plate is inclined with respect to the bottom wall, and an angle formed between said metal plate and the bottom wall is less than 45 degrees.

6. (Original) The plasma treatment equipment according to claim 1, wherein said chamber wall and said susceptor electrode are shorted at a plurality of short points.

7. (Original) The plasma treatment equipment according to claim 6, wherein the plurality of short points are disposed approximately symmetrically with respect to a center of said susceptor electrode.

8. (Original) The plasma treatment equipment according to claim 6, wherein the plurality of short points are disposed approximately symmetrically with respect to a center of a shield of said susceptor electrode.

9. (Original) The plasma treatment equipment according to claim 1, wherein said susceptor electrode comprises a shield having the same DC potential as said chamber wall, and said shield and said chamber wall are AC shorted to each other.

10. (Original) The plasma treatment equipment according to claim 1, wherein said susceptor electrode is shorted to a side wall of the chamber wall.

11. (Original) Plasma treatment equipment comprising:

a plasma chamber having a bottom wall and a side wall; and

a susceptor electrode disposed within the plasma chamber, said susceptor electrode comprising a generally planar shaped electrode portion oriented substantially

parallel to the bottom wall of the plasma chamber, said susceptor electrode further comprising a generally planar shaped shield disposed adjacent to said electrode portion, said shield being located between said electrode portion and the bottom wall of the plasma chamber,

wherein the bottom wall of the plasma chamber and the shield of the susceptor electrode have the same DC potential,

wherein the bottom wall of the plasma chamber and the shield of the susceptor electrode are AC shorted to each other by a metal plate, said metal plate having a first end connected to a first short point on the shield and a second end connected to a second short point on the bottom wall of the chamber, and
wherein the second short point is located within 500 mm of the side wall of the plasma chamber.

12. (Original) Plasma treatment equipment comprising:

a plasma chamber having a bottom wall and a side wall; and
a susceptor electrode disposed within the plasma chamber, said susceptor electrode comprising a generally planar shaped electrode portion oriented substantially parallel to the bottom wall of the plasma chamber, said susceptor electrode further comprising a generally planar shaped shield disposed adjacent to said electrode portion, said shield being located between said electrode portion and the bottom wall of the plasma chamber,

wherein the side wall of the plasma chamber and the shield of the susceptor electrode have the same DC potential, and

wherein the side wall of the plasma chamber and the shield of the susceptor electrode are AC shorted to each other by a metal plate, said metal plate having a first end connected to a first short point on the shield and a second end connected to a second short point on the side wall of the chamber.

13. (New) A plasma treatment equipment having a chamber for performing plasma treatment, the plasma treatment equipment comprising:

a plasma excitation electrode to which a power for plasma excitation is supplied, the plasma excitation electrode being provided in the chamber;

a susceptor electrode that is opposed to the plasma excitation electrode provided in the chamber; and

an electrode shield of the susceptor electrode in the chamber,

wherein at least one of the susceptor electrode and the electrode shield thereof has the same DC potential as that of a chamber wall of the chamber,

the susceptor electrode being an electrode into which a high frequency electric current based on the power for plasma excitation flows after passing through a plasma space,

the chamber wall of the chamber and at least one of the susceptor electrode and the electrode shield thereof are AC shorted to each other by a plurality of metal plates, and

the susceptor electrode is connected to the chamber wall of the chamber by a bellows disposed outside the chamber, the plurality of metal plates are configured to pass high frequency current so that the plasma treatment equipment have a suscepter impedance less than 15Ω using a power source having frequency higher than 13.56MHz.

14. (New) The plasma treatment equipment according to claim 13, wherein the electrode shield of the susceptor electrode has the same DC potential as that of the chamber wall of the chamber, and the chamber wall of the chamber and the electrode shield of the susceptor electrode are AC shorted to each other.

15. (New) The plasma treatment equipment according to claim 14, wherein said chamber wall and said electrode shield are shorted to each other at a location that is within a distance shorter than 500 mm from a side wall of the chamber wall.

16. (New) The plasma treatment equipment according to claim 15, wherein said electrode shield is shorted to said chamber wall at a short point on a bottom wall of

the chamber wall, said short point being located within a distance shorter than 500 mm from a side wall as measured along the bottom wall.

17. (New) The plasma treatment equipment according to claim 14, wherein said chamber wall and said electrode shield are shorted at a plurality of short points.

18. (New) The plasma treatment equipment according to claim 17, wherein the plurality of short points are disposed approximately symmetrically with respect to a center of said electrode shield.

19. (New) The plasma treatment equipment according to claim 14, wherein said electrode shield is shorted to a side wall of the chamber wall.

20. (New) The plasma treatment equipment according to claim 16, wherein said electrode shield is shorted to said chamber wall by a metal plate, said metal plate being connected between the short point on the bottom wall and a second short point on the electrode shield.

21. (New) The plasma treatment equipment according to claim 20, wherein said metal plate is inclined with respect to the bottom wall, and an angle formed between said metal plate and the bottom wall is less than 45 degrees.

22. (New) The plasma treatment equipment according to claim 13, wherein the at least one of the electrode and the electrode shield being at the same DC potential as the chamber wall is the electrode, the electrode being shorted to the chamber wall by a metal plate.

23. (New) A plasma treatment equipment having a chamber for performing plasma treatment, the plasma treatment equipment comprising:

a plasma excitation electrode to which a power for plasma excitation is supplied, the plasma excitation electrode being provided in the chamber;

a susceptor electrode that is opposed to the plasma excitation electrode provided in the chamber; and

an electrode shield of the susceptor electrode in the chamber, the electrode shield disposed adjacent to the susceptor electrode,

wherein at least one of the susceptor electrode and the electrode shield thereof has the same DC potential as that of a chamber wall of the chamber,

the susceptor electrode being an electrode into which a high frequency electric current based on the power for plasma excitation flows after passing through a plasma space,

the chamber wall of the chamber and at least one of the susceptor electrode and the electrode shield thereof are AC shorted to each other by a plurality of metal plates, each metal plate having a first end connected to a first short point on the shield and a second end connected to a second short point on an inner surface of the bottom wall of the chamber, and

the susceptor electrode is connected to the chamber wall of the chamber by a bellows disposed outside the chamber, the plurality of metal plates are configured to pass high frequency current so that the plasma treatment equipment have a suscepter impedance less than 15Ω using a power source having frequency higher than 13.56MHz.

24. (Withdrawn) The plasma treatment equipment according to claim 1, wherein the plurality of metal plates are mesh forms disposed in point symmetry with respect to a center of said electrode shield.